

## **ABSTRACT**

A tuneable multi-section semiconductor laser 100 is characterized by applying currents in step-wise increments to sections 101, 102, 103 of the laser respectively and measuring power output by the laser to determine values of the applied currents corresponding to stable operating conditions for which the laser emits radiation at wavelengths remote from mode boundaries 51, 52; 141, 142 of the laser. The wavelength of the emitted radiation is measured and variations in the applied currents required to cross a mode boundary such that the laser undergoes a mode jump to emit radiation at a significantly different wavelength are also measured. These values are stored in a look-up table for use of the laser under the characterizing conditions and state of ageing of the laser. The applied currents are changed, to cause a predetermined incremental change in wavelength of the emitted radiation, within the said mode boundaries, and the further values are also stored. This is repeated for further incremental changes in wavelength. The further values may be stored in the original look-up table or in further look-up tables. The radiation emitted from the laser is monitored and the applied currents controlled by the further values whenever the output changes by a predetermined proportion of the incremental change.